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imagery analysis report

**The Severomorsk Explosion and
the Soviet Resupply Effort (S)**

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SC-628365/85
IAR-0001/85
MARCH 1985
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THE SEVEROMORSK EXPLOSION AND THE SOVIET RESUPPLY EFFORT (S)

ABSTRACT

1. On imagery of [redacted] there was evidence of a series of explosions at Severomorsk Naval Missile Storage Facility [redacted] the Soviet Union's largest naval missile storage complex and the principal naval missile storage facility for the Northern Fleet. The explosions, which occurred after [redacted] according to imagery, destroyed a large part of that fleet's cruise and surface-to-air missile (SAM) stockpile. The explosions damaged or destroyed between 50 and 60 percent of the stored cruise missiles, including all the Northern Fleet's known reserve of SS-N-22 antiship cruise missiles; over 60 percent of the stored SAMs, including all the SA-N-6s and SA-N-7s; and all the stored warhead and booster/component crates. The Soviets began rebuilding the facility soon after the explosion, and the facility was completely operational by the end of 1984. (S/WN)

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2. This report summarizes the damage to the facility and the subsequent salvage and resupply operations, and its conclusions may also help determine the short- and long-range effects of the explosion on the Northern Fleet. The information presented is based on an analysis of imagery acquired prior to and following the explosion. The intelligence cutoff date is [redacted] This report includes 10 annotated photographs and two tables. (S/WN)

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THE SEVEROMORSK EXPLOSION

Introduction

3. Severomorsk Naval Missile Storage Facility (Figure 1) provides storage facilities for most of the Northern Fleet's ballistic missile submarines, cruise and attack submarines, and surface combatants. The installation is collocated with the largest surface combatant base in the Northern Fleet, Severomorsk Naval Base [redacted] Severomorsk also provides missile checkout facilities for test missiles fired from combatants in the Barents Sea. (S/WN)

4. Between [redacted] a massive, chain-reaction explosion destroyed most of the SAM and cruise missile canisters and crates in open storage at Severomorsk. Because of the limited number of bunkers capable of containing readied missiles, most of these canisters and crates contained missiles. The explosion extensively damaged two principal areas within the facility: the SAM/cruise missile storage area and the SAM component storage area. These two storage areas contained most of the Northern Fleet's cruise missiles and SAMs as well as facilities and equipment for maintaining and readying the missiles for transfer to combatants. In addition, the SLBM storage area and the Severomorsk Naval Ammunition Storage West [redacted] sustained minor damage. (S/WN)

Damage

SAM/Cruise Missile Storage Area

5. The mid-May destruction probably began as one explosion in the missile storage bunker (Figure 2) on the peninsula in the lake. Two large blast holes on the side of the storage bunker indicated that the explosion occurred within the bunker (Figure 3). Missile systems stored in this area included SA-N-1, SA-N-3, SA-N-6, and SA-N-7 SAMs and SS-N-3, SS-N-12, SS-N-19, and SS-N-22 cruise missiles. The first explosion was likely fol-

lowed by sympathetic explosions of SAMs, cruise missiles, components/boosters, and warheads in open storage. All the SA-N-1, SA-N-3, and SS-N-22 canisters stored on the peninsula were destroyed. Additionally, 65 of 142 SS-N-19, 65 SA-N-6, and 65 SA-N-7 canisters in the area between the checkout building and the lake were damaged or destroyed. Table 1 shows the approximate number of canisters and crates damaged or destroyed in the explosion and the percentage of the supply that was lost. (S/WN)

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6. The blast and flying debris from the blast severely damaged the main checkout/assembly building and a smaller checkout building. The blast and debris also destroyed one of the small component bunkers directly across the lake from the main storage bunker. (S/WN)

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SAM Component Storage Area

7. Debris from the main explosion probably caused the explosion in the SAM component storage area (Figure 4), approximately 400 meters west of the SAM/cruise missile storage area. This area contained SA-N-1 and SA-N-3 canisters and numerous booster crates and warhead canisters. The storage/checkout building, a component storage building, and the entire supply of booster crates and warhead canisters were destroyed (Figure 5). (S/WN)

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Other Areas

8. The extent of damage, if any, to ballistic missiles in the adjacent SLBM storage area could not be determined, although blast marks were evident on the sides of at least four of the airframe storage bunkers. Additionally, the explosion ripped the metal sheeting from the sides of Quonset-type buildings within the Naval Ammunition Storage West Facility (Figure 6), approximately 400 meters east-southeast of the SAM/cruise missile storage area and approximately 600 meters north of the SAM component storage area. (S/WN)

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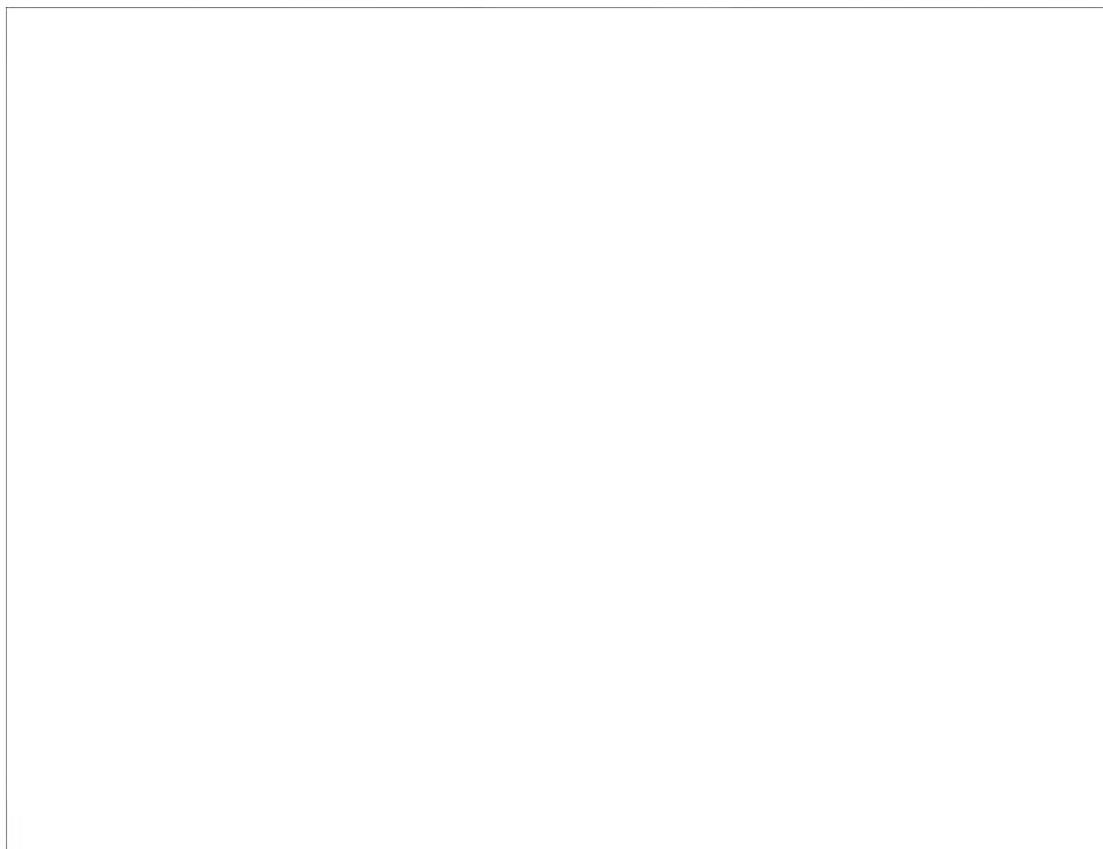
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Cleanup, Salvage, and Reconstruction Operations

9. Analysis of the first postexplosion imagery, that of [redacted] showed that the initial cleanup effort began within a few days of the explosion and involved the removal of debris from roadways and the relocation of some of the salvageable missile systems. This effort lasted until the end of May. In

June, the actual rebuilding began. Numerous trucks, cranes, and personnel were in the facility, and the relocation of the remainder of salvageable missiles to the SLBM area had begun. Severely damaged buildings were razed, and reconstruction of the main assembly/checkout building had begun, as had an inspection of missiles that survived the explosion. Table 2 shows a chronology of the reconstruction activity. (S/WN)

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Table 2.
Chronology of Reconstruction Activity at Severomorsk Naval Missile Storage Facility

Date	SAM/Cruise Missile Storage Area	SAM Component Storage Area	Other Areas
	Small component storage bunker razed, razing of smaller checkout building begun.	Razing of assembly/checkout building begun, reconstruction of support building begun.	
	Earth removed from main checkout bunker.	Assembly/checkout building razed, support building rebuilt.	
	Main checkout bunker razed, area cleared of debris.		Two Quonset-type buildings razed in torpedo storage area.
	Arch-roofed sections delivered, indicating that main checkout bunker was to be rebuilt.		

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10. The reconstruction of the main assembly/checkout building (Figure 7) in the SAM/cruise missile storage area was probably made a high priority project so that missiles that survived the explosion could be checked out at the facility prior to being transferred to combatants. Without this building, which houses the electronic equipment required in the missile checkout process, the major step in the provision of fully serviced missiles could not be accomplished. In early June, all the overhead supports and the sidewalls of the high-bay section of the building were removed. The high-bay section, which supported a gantry crane, was completely rebuilt, probably because the overhead and the sidewall supports were too weak to support the overhead crane. By [] the sidewalls and a large section of the roof had been replaced. The building was externally complete by [] (S/WN)

11. The Soviet salvage efforts also included the inspection of the SS-N-19 missile canisters. Even though they were closer to the blast, the newer-design, metal SS-N-19 canisters stored near the lake survived the explosion better than the older, wooden SS-N-3/-12 crates, which were either crushed or burned in the explosion. No damage to the SS-N-19 canisters was discernible on imagery. On [] many of the SS-N-19 canisters had been opened and were being inspected (Figure 8). By [] 30-40 of the 60-65 SS-N-19 canisters had been moved from the facility to an area just north of Severomorsk Naval Missile Loading Facility Okolnaya [] the canisters or possibly the missiles inside them were damaged and/or no longer functional. (S/WN)

12. By the end of August, the facility had significantly recovered from the explosion. Though cleanup and salvage operations were still in progress, the facility had a clean appearance and was operational. The buildings severely damaged by the explosion had been either razed or rebuilt or were being reconstructed. (S/WN)

Preparations for Resupply

13. Before the main resupply effort, several types of missile systems, which were at the Severomorsk Missile Transfer Point [] were transferred to the Missile Storage Facility. On [] there were 99 SA-N-1 canisters (54 probably empty), 64 SA-N-3 canisters (21 probably empty), 117 SA-N-6 canisters (projected for Kirov-class nuclear-powered guided missile cruiser [CGN] unit 2), four SS-N-2 crates, seven SS-N-7/-9 crates, and 15 SS-N-3/-12 crates (probably empty) at the Missile Transfer Point (Figure 9). Immediately following the explosion, the Soviets began transferring these missile systems to Severomorsk Missile Storage Facility. (S/WN)

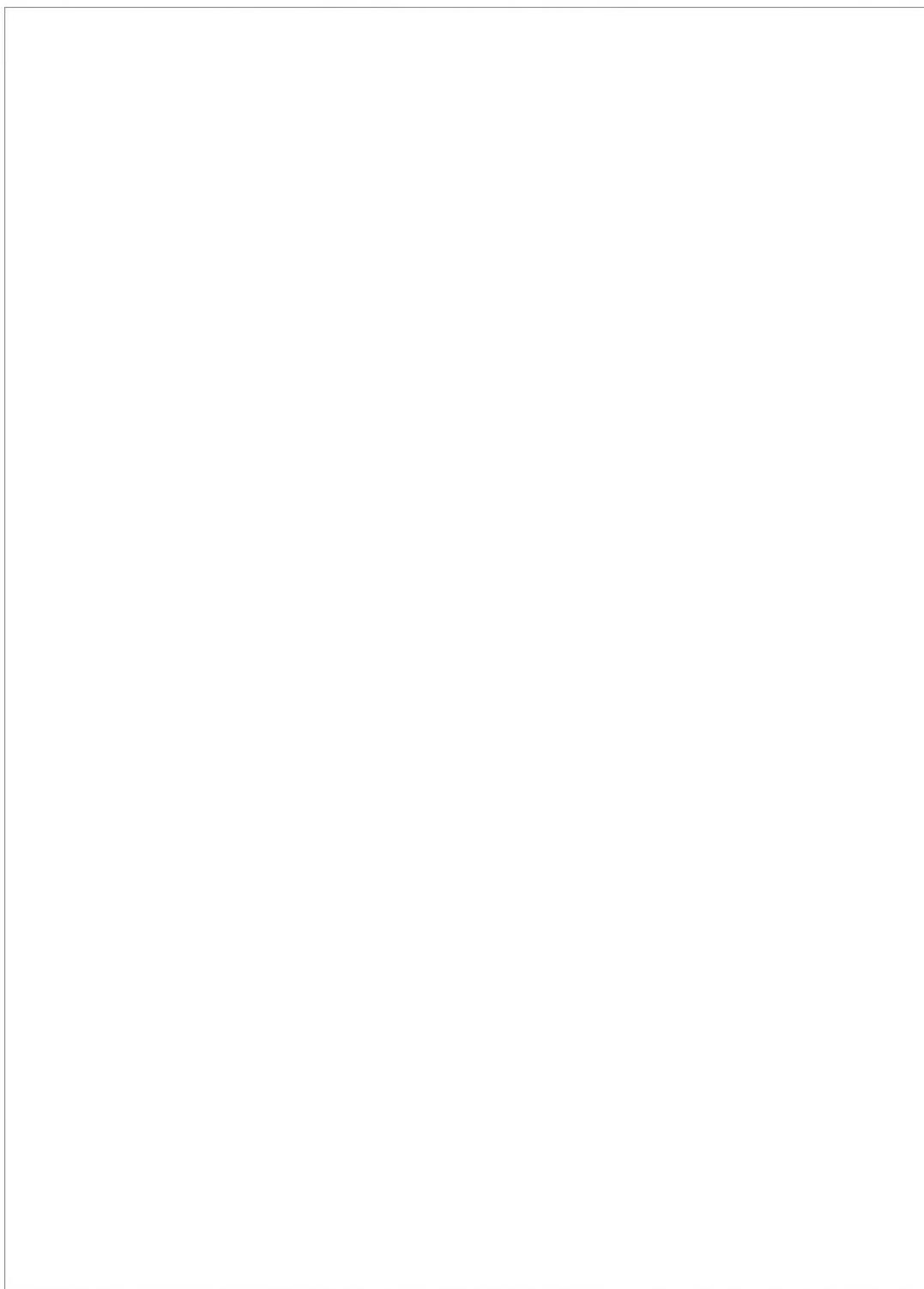
14. The first missile system removed from the Missile Transfer Point was the SA-N-6 SAM. By [] 110 of the 117 SA-N-6 canisters that were in the Missile Transfer Point before the explosion had been moved to the Missile Storage Facility. These missiles were probably for the second unit of the Kirov-class CGN, which arrived at Severomorsk in early September, and were not replacements for destroyed missiles. (S/WN)

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15. By [] approximately 54 SA-N-1 and 21 SA-N-3 canisters were removed from the Missile Transfer Point. Because no increase in the number of SA-N-1 or SA-N-3 systems was observed at the Missile Storage Facility, these canisters were probably empty and were probably returned to the production plant. Between [] the remaining 45 SA-N-1 and 43

SA-N-3 canisters at the Transfer Point had been moved to the Missile Storage Facility. The SS-N-3/-12 crates at the Transfer Point were repositioned next to the rail line; thus, they were probably empty crates also slated for return to the production plant. The SS-N-2 crates were not removed from the Missile Transfer Point. (S/WN)

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16. The Soviet resupply effort began in early June. As a temporary replacement for the loss of 72 percent of the SS-N-12 missiles at Severomorsk, the Soviets ferried missiles from Cuba Litsa Submarine Base South [redacted]. On at least two occasions, a Yuryuzan ferry transferred between six and eight SS-N-12 crates from Guba Litsa to Severomorsk (Figure 10). In the past, the Yuryuzan ferry has transported other missile systems, including the SS-N-19. (S/WN)

17. The major resupply effort, involving the transfer of missiles from outside the Severomorsk area, began in mid-July. Imagery of [redacted] indicated that 85 SS-N-3/-12 crates were removed from Surok Naval Missile Transshipment Storage Center [redacted] and were probably taken to Olenegorsk Naval Missile Storage Facility (BE [redacted]). The crates were observed at the center on imagery of [redacted]. Imagery of [redacted] indicated a second transshipment from Surok occurred, with 28 additional SS-N-3/-12 crates and approximately 200 SA-N-1 and 130 SA-N-3 canisters delivered to Olenegorsk Naval Missile Storage Facility. During this period, Olenegorsk was imaged only twice; therefore, a complete analysis of the number of missile systems entering/exiting the facility was not possible. Surok is in the central USSR and is a major transshipment and storage facility. Olenegorsk is on the Kola Peninsula, 130 nautical miles south of Severomorsk, and serves as

the principal rear depot for the Northern Fleet. Missiles shipped from Surok to Severomorsk by rail would pass through the Olenegorsk area. [redacted]

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18. Between [redacted] the first 11 SS-N-3/-12 crates from rear depot storage arrived at the Missile Transfer Point. On [redacted] 15 additional SS-N-3/-12 crates were on railcars with in the Transfer Point. By [redacted] a total of 36 SS-N-3/-12 crates, 150 SA-N-1, and 100 SA-N-3 canisters had been delivered to the Missile Transfer Point from rear depot storage. (S/WN)

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19. After the arrival of the SS-N-3/-12 crates at Severomorsk from Surok, a number of SS-N-3/-12 crates, probably carrying SS-N-12s, were returned from Severomorsk to Guba Litsa. On [redacted] a Pioneer Moskvy-class merchant ship was at Severomorsk Naval Missile Loading Facility Okolnaya with approximately 20 SS-N-3/-12 crates on deck. By [redacted] the ship had departed the facility, and on [redacted] it was at Litsa Guba Submarine Base South. Only nine SS-N-3/-12 missile crates remained on deck. (S/WN)

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IMAGERY ANALYST'S COMMENTS

20. Although imagery to date indicates that the storage and handling facilities at Severomorsk will likely be completely restored within a year of the explosion, the explosion has other significant longer-term ramifications. In order for the Soviets to recover completely, they will have to replace those missile systems lost in the explosion, restock rear depot storage, and increase production of missile systems projected for newly deployed units. Satisfying these requirements should have little effect on other fleets because most of the newer missile systems are utilized on vessels deployed only in the Northern Fleet. Unless increased missile production can be rapidly accomplished, the Soviets will have shortfalls in the number and class of missiles intended for and required by their expanding Northern Fleet. Until substantial resupply of Severomorsk and its rear depots occurs, the operational capabilities of this fleet will be reduced. (S/WN)

21. By early September 1984, most of the damaged facilities had been rebuilt. The cleanup and salvage operations revealed two important facts: the early cleanup efforts and the lack of decontamination equipment indicated that no nuclear material was involved in the explosion; the speed of reconstruction and resupply at Severomorsk demonstrated the Soviet intent to return the facility to complete operational status. Continued monitoring of Severomorsk will provide considerable insight into the Soviets' ability to return a facility to its once preeminent status. (S/WN)

22. Resupply, not cleanup, has been the major problem. Restocking the munitions lost has been restricted to older systems readily available at rear depots, including SS-N-3/12s, SA-N-1s, and SA-N-3s. Clearly, the production rate will largely determine the resupply rate, especially for newer missile systems such as the SS-N-22 and SS-N-19 which are not stockpiled in rear depots. (S/WN)

23. The loss of the newer and more advanced missile systems creates an especially undesirable situation in the Northern Fleet, where

newer missile systems are being required in increasing numbers to complement the additional surface ships and submarines produced. The clearly intended deployment of new combatants to the Northern Fleet further complicates the resupply of Severomorsk because these combatants require the newer missile systems. For example, the SS-N-22 missile system was designed for the Sovremenny-class guided missile destroyer (DDG). Three of these DDGs are currently operational in the Northern Fleet: one is conducting at-sea trials in the Baltic, and two are fitting out. Additionally, the loss of 40 SS-N-19 cruise missiles will severely degrade the Northern Fleet's operations and could strain attempted increases in the Soviet Union's missile production facilities. The SS-N-19 missile system is the primary antiship weapon carried aboard the Kirov-class nuclear-powered guided missile cruiser and the Oscar-class nuclear-powered cruise missile submarine. Older missile systems such as the SA-N-1 and the SA-N-3 were already in limited production prior to explosion. Increases in the production of these older missile systems may not be possible or easily achieved due to the limited availability of system components. The older systems are, however, in abundant supply in rear depot storage. For example, approximately 4,000 SA-N-3 canisters are stockpiled throughout the Soviet Union. (S/WN)

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the present time, crew training on missile-equipped surface ships and submarines has been limited. Furthermore,

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The long-range ramifications of the explosion may even include the acceleration of production and the introduction of newly designed missile systems to replace older systems currently in limited production.

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REFERENCES

IMAGERY

All applicable imagery acquired through [redacted] was used in the preparation of this report. (S/WN)

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DOCUMENTS

1. CIA, SC-02384, *Impact of Damage at Severomorsk Naval Missile Storage Facility (U)*, 11 Oct 84 (SECRET)
2. NPIC, Z-14071/84, IAR-0033/84, *Procedural Changes at Soviet Naval Storage Facilities (S)*, Aug 84 (SECRET)

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*Extracted information is classified SECRET [redacted]

Comments and queries regarding this report are welcome. They may be directed to [redacted] Soviet Air Navy and Nuclear Division, Imagery Exploitation Group, NPIC, at [redacted]

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